FLEXIDOME IP starlight 7000 VR

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Invented for life

HD ONVIF

- Excellent low-light performance (0.017 lx in color)
- Aesthetic vandal-resistant enclosure, suitable for indoor or outdoor applications
- Intelligent noise reduction reduces bandwidth and storage requirements by up to 50%
- Outstanding wide dynamic range (100 dB with IAE)
- Easy to install with auto zoom/focus SR lens, wizard and pre-configured modes

The FLEXIDOME IP starlight 7000 VR camera provides clear images 24/7 – even at night or under low-light conditions.
High sensitivity in color (0.017 lx) and monochrome mode (0.0057 lx) enables this camera to work with a minimum of ambient light. This exceptional light sensitivity combined with Content Based Imaging Technology (CBIT) ensures crisp, clear, and detailed images in all lighting conditions.
The camera can also provide up to 60 images per second.
The aesthetic vandal-resistant housing makes the camera suitable for indoor or outdoor installation.

System overview

Compared to SD cameras, this camera offers, at no higher cost, motorized autofocus, higher resolution, better sensitivity, higher frame rates, and improved picture quality, and is still more bandwidth-efficient. Video storage costs are significantly reduced.

Functions

Exceptional low-light performance
The latest sensor technology combined with the sophisticated noise suppression results in a sensitivity of 0.017 lx in color. The low-light performance is so good that the camera continues to provide excellent color performance even with a minimum of ambient light.
The camera is a true day/night camera with a mechanical filter for truly outstanding nighttime performance (0.0057 lx in monochrome). The filter can be switched remotely, or automatically via a light level sensor or contact input.

Content Based Imaging Technology
Content Based Imaging Technology (CBIT) is used to radically improve image quality in all lighting conditions and to identify areas for enhanced processing. The camera examines the scene using Intelligent Video Analysis (IVA) and provides feedback to re-tune the image processing. This provides better detail in the areas that matter and better all-round performance. With IVA, the Intelligent Auto Exposure technology, for example, allows you to view moving objects in bright and dark areas of a scene.

Intelligent Dynamic Noise Reduction reduces bandwidth and storage requirements
The camera uses Intelligent Dynamic Noise Reduction which actively analyzes the contents of a scene and reduces noise artifacts accordingly.
The low-noise image and the efficient H.264 compression technology provide clear images while reducing bandwidth and storage by up to 50% compared to other H.264 cameras. This results in reduced-bandwidth streams that still retain a high image quality and smooth motion. The camera provides the most usable image possible by cleverly optimizing the detail-to-bandwidth ratio.

Area-based encoding
Area-based encoding is another feature which reduces bandwidth. Compression parameters for up to eight user-definable regions can be set. This allows uninteresting regions to be highly compressed, leaving more bandwidth for important parts of the scene.
The average typical optimized bandwidth in kbits/s for various image rates is shown in the table:

IPS	720p	480p
60	1400	
30	1163	600
15	926	478
12	850	438
5	550	284
2	237	122

Fast performance
The 60 images-per-second mode provides for optimum performance in fast action scenes and is particularly suitable for casino and banking applications.

Multiple streams
The innovative multi-streaming feature delivers various H.264 streams together with an M-JPEG stream. These streams facilitate bandwidth-efficient viewing and recording as well as integration with third-party video management systems.
An upright mode can be selected for the second stream. In this mode an image of 400 x 720 (9:16 aspect ratio) is cropped from the full sensor image. When the scene to be monitored is suitable to this mode, the bandwidth and storage requirements are reduced.

Regions of interest and E-PTZ
Regions of Interest (ROI) can be user defined. The remote E-PTZ (Electronic Pan, Tilt and Zoom) controls allow you to select specific areas of the parent image. These regions produce separate streams for remote viewing and recording. These streams, together with the main stream, allow the operator to separately monitor the most interesting part of a scene while still retaining situational awareness.

With IVA, Intelligent Tracking can follow objects within the defined regions of interest. Intelligent Tracking can autonomously detect and track moving objects or the user can click on an object which the tracker will then follow.

Flexible lens choice
The camera comes with a choice of AVF (Automatic Varifocal) lenses for easy installation. These SR (Super Resolution) lenses have an advanced iris design to ensure that the high resolution HD sensor produces the sharpest image possible, even in the corners.

Simple set-up
The camera has a very intuitive user interface that allows fast and easy configuration. Configurable scene modes are provided with the best settings for a variety of applications.

- **Indoor** – general day-to-night changes in an indoor environment without sun highlights or street lighting effects.
- **Outdoor** – general day-to-night changes in an outdoor environment with sun highlights and street lighting effects.
- **Traffic** – for monitoring traffic movement on roads or parking lots. It can also be used in industrial applications where fast moving objects are to be monitored. Motion artifacts are minimized.
- **Night-optimized** – optimized for details in low light environments.
- **Intelligent AE** – optimized for scenes with fluctuating front and back light caused by sunlight or other illuminated objects in the scene.
- **Vibrant** – enhanced contrast, sharpness and saturation.
- **Low bit rate** – reduces bandwidth requirements.
- **Sports and gaming** – high-speed capture, and improved color rendition and sharpness.
- **Retail** – improved color rendition and sharpness with reduced bandwidth requirements.

Storage management
Recording management can be controlled by the Bosch Video Recording Manager (VRM) or the camera can use iSCSI targets directly without any recording software.

Edge recording
Insert a memory card into the card slot to store up to 2 TB of local alarm recording. Pre-alarm recording in RAM reduces recording bandwidth on the network, and extends the effective life of the memory card.

Video analytics
With built-in video content analysis, the camera reinforces the Intelligence-at-the-Edge concept where edge devices become increasingly intelligent. The MOTION+ video motion analysis system that is built into all camera versions is the perfect solution for applications where standard video content analysis features are required.

The IVA version of the camera uses the latest generation of the Bosch Intelligent Video Analysis (IVA) software. This IVA system is the guard-assistant system of choice when reliable indoor or outdoor video analytics is needed. The state-of-the-art system reliably detects, tracks, and analyzes moving objects while suppressing unwanted alarms from spurious sources in the image.
The face detection feature detects faces in the scene and forwards a high quality JPEG image of the best shot of each face when the face disappears from the scene.
Retrospective forensic search capabilities are available remotely from the web browser or the Bosch Video Client.

Cloud-based services
The camera supports time-based or alarm-based JPEG posting to four different accounts. These accounts can address FTP servers or cloud-based storage facilities (for example, Dropbox). Video clips or JPEG images can also be exported to these accounts.
Alarms can be set up to trigger an e-mail or SMS notification so you are always aware of abnormal events.

Access security
Password protection with three levels and 802.1x authentication is supported. To secure Web browser access, use HTTPS with a SSL certificate stored in the camera. The video and audio communication channels can be independently AES encrypted with 128-bit keys by installing the optional encryption site license.

Complete viewing software
There are many ways to access the camera's features: using a web browser, with the Bosch Video Management System, with the free-of-charge Bosch Video Client, with the video security mobile app, or via third-party software.

Video security App
The Bosch video security mobile App has been developed to enable Anywhere access to HD surveillance images allowing you to view live images from any location. The App is designed to give you complete control of all your cameras, from panning and tilting to zoom and focus functions. It's like taking your control room with you.
This App, together with the separately available Bosch transcoder, will allow you to fully utilize our dynamic transcoding features so you can play back images even over low-bandwidth connections.

System integration
The camera conforms to the ONVIF Profile S specification. Compliance with this standard guarantees interoperability between network video products regardless of manufacturer.
Third-party integrators can easily access the internal feature set of the camera for integration into large projects. Visit the Bosch Integration Partner Program (IPP) website (ipp.boschsecurity.com) for more information.

Easy installation
Power for the camera can be supplied via a Power-over-Ethernet compliant network cable connection. With this configuration, only a single cable connection is required to view, power, and control the camera. Using PoE makes installation easier and more cost-effective, as cameras do not require a local power source.
The camera can also be supplied with power from +12 VDC/24 VAC power supplies. To increase system reliability, the camera can be simultaneously connected to both PoE and +12 VDC/24 VAC supplies. Additionally, uninterruptible power supplies (UPS) can be used, which will allow continuous operation, even during a power failure.
The automatic zoom/focus lens wizard makes it easy for an installer to accurately zoom and focus the camera for both day and night operation. The wizard is activated from the PC or from the on-board camera push button making it easy to choose the workflow that suits best.
The AVF (Automatic Varifocal) feature means that the zoom can be changed without opening the camera. The automatic motorized zoom/focus adjustment with 1:1 pixel mapping ensures the camera is always accurately focused.

Hybrid mode
An analog video output enables the camera to operate in hybrid mode. This mode provides simultaneous high resolution HD video streaming and an analog video output via a BNC connector. The hybrid functionality offers an easy migration path from legacy CCTV to a modern IP-based system.

Aesthetic vandal resistant design
The compact aesthetic design is suitable for installations where housing size and appearance are important. The cast-aluminum housing, polycarbonate window, and hardened inner liner can withstand the equivalent of 55 kg (120 lbs) of force (IK10). The camera is protected against water and dust to IP 66 (NEMA Type 4X) standards. Using the proprietary pan/tilt/rotation mechanism, installers can select the exact field of view. Mounting options are numerous, including surface, wall, corner, and suspended-ceiling mounting.

Certifications and approvals

HD standards
Complies with the 296M-2001 Standard in:
- Resolution: 1280x720
- Scan: Progressive
- Color representation: complies with ITU-R BT.709
- Aspect ratio: 16:9

– Frame rate: 50 and 60 frames/s

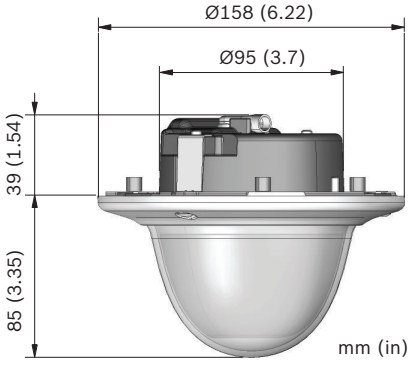
Standards	
Emission	EN55022 Class B FCC Part 15, class B
Immunity	EN50130-4 (PoE, +12 VDC, 24 VAC)* EN50121-4
Safety	EN60950-1 UL60950-1 (2nd edition) CAN/CSA-C 22.2 No. 60950-1
Vibration	Camera with lens as per IEC60068-2-6 (5 m/s², operational)
ONVIF conformance	EN 50132-5-2; IEC 62676-2-3

* Chapters 7 and 8 (mains voltage supply requirement) are not applicable to the camera. However, if the system in which this camera is used needs to comply with this standard, then any power supplies used must comply with this standard.

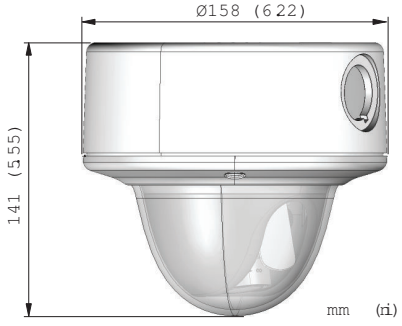
Region	Certification
Europe	CE
	CE accessories
USA	UL
	FCC

Installation/configuration notes

Dimensions flush mounting

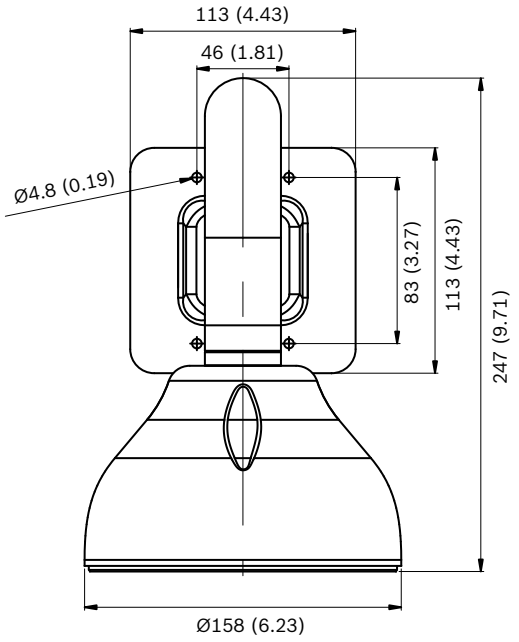


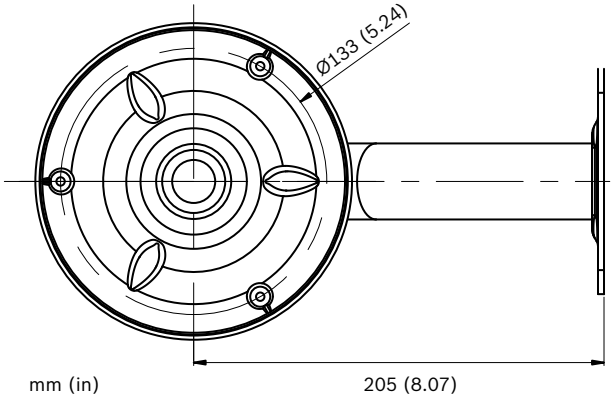
Dimensions surface mounting



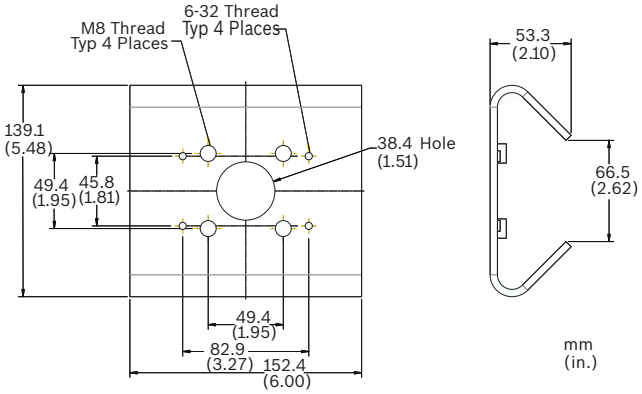
Brackets (not included)

VDA-WMT-DOME –Pendant Wall Mount

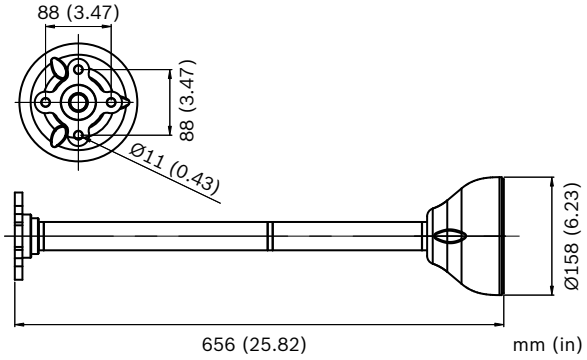




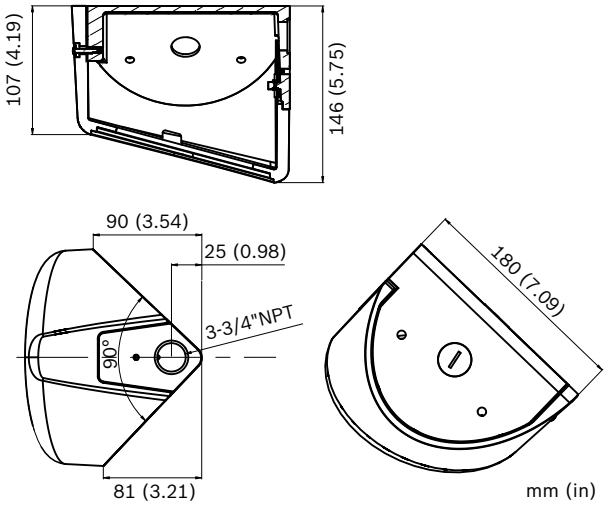
LTC 9213/01 Pole Mount Adapter



VDA-PMT-DOME –Pendant Pipe Mount



VDA-CMT-DOME –Corner Mount



Technical specifications

Power	
Power Supply	24 VAC 50/60 Hz 12 VDC Power-over-Ethernet 48 VDC nominal
Current Consumption	500 mA | 600 mA IVA (12 VDC) 450 mA | 500 mA IVA (24 VAC) 150 mA | 175 mA IVA (PoE 48 VDC)
Power Consumption	6 W | 7.2 W IVA
PoE	IEEE 802.3af (802.3at Type 1)

Sensor	
Type	1/3-inch CMOS
Pixels	1312 x 1069 (1.4MP)

Video performance - Sensitivity	
Sensitivity – (3200K, reflectivity 89%, 1/60, 30IRE)	
Lens 3 - 9 mm (F1.2)	
• Color	0.017 lx (0.0017 fc)
• Mono	0.0057 lx (0.00057 fc)
Lens 10 - 23 mm (F1.6)	
• Color	0.03 lx (0.003 fc)
• Mono	0.01 lx (0.001 fc)

Video performance - Dynamic range	
Dynamic range	84 dB WDR 100 dB WDR (with IAE)

Video streaming	
Video compression	H.264 (MP); M-JPEG
Streaming	Multiple configurable streams in H.264 and M-JPEG, configurable frame rate and bandwidth. Regions of Interest (ROI)
Overall IP Delay	Min. 120 ms, Max. 240 ms
GOP structure	IP, IBP, IBBP
Encoding interval	1 to 60 (50) ips
Resolutions (H x V)	
• 720p HD	1280 x 720
• 1.3MP 5:4	1280 x 1024 (30p max., no IVA)
• Upright 9:16 (cropped)	400 x 720
• D1 4:3 (cropped)	704 x 480
• 480p SD	Encoding: 704 x 480; Displayed: 854 x 480
• 432p SD	768 x 432
• 288p SD	512 x 288
• 240p SD	Encoding: 352 x 240; Displayed: 432 x 240
• 144p SD	256 x 144

Video functions	
Day/Night	Color, Mono, Auto
Adjustable picture settings	Contrast, Saturation, Brightness
White Balance	4 automatic modes, manual mode and measure
Shutter	Automatic Electronic Shutter (AES) Fixed (1/30 [1/25] to 1/15000) selectable Default shutter
Backlight compensation	Off / On / Intelligent Auto Exposure (BLC)
Contrast enhancement	On/off

Video functions	
Noise reduction	Intelligent Dynamic Noise Reduction with separate temporal and spatial adjustments
Sharpness	Sharpness enhancement level selectable
Privacy Masking	Four independent areas, fully programmable
Video Motion Analysis	MOTION+ or Intelligent Video Analysis
Other functions	Image mirror, Image flip, Pixel counter, Video watermarking, Display stamping, Scene modes

Audio streaming	
Audio Streaming	Full duplex / half duplex
Signal-to-noise ratio	> 50 dB
Audio compression	AAC-LC, G.711, L16 (live and recording)

Input/output	
Analog Video out	CVBS (PAL/NTSC), 1 Vpp, BNC, 75 Ohm
Analog Video out (service only)	CVBS (PAL/NTSC), 1 Vpp, 2.5 mm jack, 75 Ohm (no surge protection)
Audio	1 x mono line in, 1 x mono line out
• signal line in	12 kOhm typical, 1 Vrms max
• signal line out	1 Vrms at 1.5 kOhm typical,
Alarm	2 inputs
• activation voltage	+5 VDC to +40 VDC (+3.3 VDC with DC-coupled 22 kOhm pull-up resistor)
Relay	1 output
• voltage	30 VAC or +40 VDC Maximum 0.5 A continuous, 10VA

Local storage	
Internal RAM	10 s pre-alarm recording
Memory card slot	Supports up to 32 GB microSDHC / 2 TB microSDXC card. (An SD card of Class 6 or higher is recommended for HD recording)
Recording	Continuous recording, ring recording. alarm/ events/schedule recording

Software	
Unit Configuration	Via web browser or Configuration Manager
Firmware update	Remotely programmable
Software viewer	Web browser, Bosch Video Client, or third party software

Network	
Protocols	IPv4, IPv6, UDP, TCP, HTTP, HTTPS, RTP/ RTCP, IGMP V2/V3, ICMP, ICMPv6, RTSP, FTP, Telnet, ARP, DHCP, NTP (SNTP), SNMP (V1, MIB-II), 802.1x, DNS, DNSv6, DDNS (DynDNS.org, selfHOST.de, no-ip.com), SMTP, iSCSI, UPnP (SSDP), DiffServ (QoS), LLDP, SOAP, Dropbox, CHAP, digest authentication
Encryption	TLS 1.0, SSL, DES, 3DES, AES (optional)
Ethernet	10/100 Base-T, auto-sensing, half/full duplex
Connectivity	Auto-MDIX
Interoperability	ONVIF Profile S; GB/T 28181

Optical	
Lens	3 to 9 mm Automatic Varifocal (AVF) SR lens (IR corrected) - or – 10 to 23 mm Automatic Varifocal (AVF) SR lens (IR corrected)
Lens mount	Board mounted
Adjustment	Motorized zoom/focus
Iris control	Automatic iris control
Viewing angle (3 to 9 mm)	Wide: 96º x 52º (H x V) Tele: 32º x 18º (H x V)
Viewing angle (10 to 23 mm)	Wide: 28º x 15º (H x V) Tele: 12.4º x 6.9º (H x V)

Mechanical	
Dimensions (D x H)	158 x 124 mm (6.22 x 4.89 in)
Weight	0.85 kg (1.87 lb) 1.28 kg (2.82 lb) with SMB
Mounting	Flush mount or surface mount
Color	White (RAL9010) trim ring with black inner liner
Adjustment range	360º pan, 90º tilt, ±90º twist
Dome bubble	Polycarbonate, clear with UV blocking anti-scratch coating
Trim ring	Aluminum

Environmental	
Operating temperature	-30 ºC to +50 ºC (-22 ºF to +122 ºF)
Cold start temperature	-20 ºC (-4 ºF)
Storage temperature	-50 ºC to +70 ºC (-58 ºF to +158 ºF)
Operating humidity	5% to 93% relative humidity
Storage humidity	Up to 98% relative humidity

Environmental	
Impact protection	IK10
Water/dust protection	IP 66 and NEMA Type 4X
Environmental Test Method	EN 50130-5:2011 Alarm systems Part 5 (Class IV Outdoor in general)

Ordering information

FLEXIDOME IP starlight 7000 VR
High-performance IP dome camera for HD surveillance in low light. 720p60; Hybrid; IP66; IK10; IDNR; ROI; H.264 quad-streaming; cloud services; free viewing Apps; 3 to 9 mm SR lens; MOTION+
Order number **NIN-733-V03P**

FLEXIDOME IP starlight 7000 VR
High-performance IP dome camera for HD surveillance in low light. 720p60; Hybrid; IP66; IK10; IDNR; IAE; ROI; H.264 quad-streaming; cloud services; free viewing Apps; 3 to 9 mm SR lens; IVA
Order number **NIN-733-V03IP**

FLEXIDOME IP starlight 7000 VR
High-performance IP dome camera for HD surveillance in low light. 720p60; Hybrid; IP66; IK10; IDNR; ROI; H.264 quad-streaming; cloud services; free viewing Apps; 3 to 9 mm SR lens; MOTION+, SMB
Order number **NIN-733-V03PS**

FLEXIDOME IP starlight 7000 VR
High-performance IP dome camera for HD surveillance in low light. 720p60; Hybrid; IP66; IK10; IDNR; IAE; ROI; H.264 quad-streaming; cloud services; free viewing Apps; 3 to 9 mm SR lens; IVA; SMB
Order number **NIN-733-V03IPS**

FLEXIDOME IP starlight 7000 VR
High-performance IP dome camera for HD surveillance in low light. 720p60; Hybrid; IP66; IK10; IDNR; ROI; H.264 quad-streaming; cloud services; free viewing Apps; 10 to 23 mm SR lens; MOTION+
Order number **NIN-733-V10P**

FLEXIDOME IP starlight 7000 VR
High-performance IP dome camera for HD surveillance in low light. 720p60; Hybrid; IP66; IK10; IDNR; IAE; ROI; H.264 quad-streaming; cloud services; free viewing Apps; 10 to 23 mm SR lens; IVA
Order number **NIN-733-V10IP**

FLEXIDOME IP starlight 7000 VR
High-performance IP dome camera for HD surveillance in low light. 720p60; Hybrid; IP66; IK10; IDNR; ROI; H.264 quad-streaming; cloud services; free viewing Apps; 10 to 23 mm SR lens; MOTION+; SMB
Order number **NIN-733-V10PS**

FLEXIDOME IP starlight 7000 VR
High-performance IP dome camera for HD surveillance in low light. 720p60; Hybrid; IP66; IK10; IDNR; IAE; ROI; H.264 quad-streaming; cloud services; free viewing Apps; 10 to 23 mm SR lens; IVA; SMB
Order number **NIN-733-V10IPS**

Accessories

VDA-WMT-DOME Wall Pendant Mount Bracket
Wall pendant mount bracket for FlexiDome cameras
Order number **VDA-WMT-DOME**

VDA-CMT-DOME Corner Mount Bracket
Corner mount bracket for FlexiDome cameras
Order number **VDA-CMT-DOME**

VDA-PMT-DOME Pendant Pipe Mount Bracket
Pendant pipe mount bracket for FlexiDome cameras
Order number **VDA-PMT-DOME**

LTC 9213/01 Pole Mount Adapter
Flexible pole mount adapter for camera mounts (use together with the appropriate wall mount adapter). Max. 9 kg (20 lb); 3 to 15 inch diameter pole; stainless steel straps
Order number **LTC 9213/01**

VDA-PLEN-DOME In-ceiling Housing for Plenums Kit
FLEXIDOME in-ceiling housing installation kit (plenum-rated) for various FLEXIDOME cameras
Order number **VDA-PLEN-DOME**

VGA-IC-SP In-ceiling Support Kit
Suspended ceiling support kit for FLEXIDOME VR cameras (requires VDA-PLEN-DOME kit) and AUTODOME 100/600/7000 cameras.
Order number **VGA-IC-SP**

UPA-2420-50 Power Supply
Power supply for cameras. 220 VAC, 50 Hz In; 24 VAC, 20 VA Out
Order number **UPA-2420-50**

UPA-2430-60 Power Supply
Power supply for camera. 120 VAC, 60 Hz; 24 VAC, 30 VA Out
Order number **UPA-2430-60**

UPA-2450-50 Power Supply, 220 V, 50 Hz
Indoor power supply for camera. 220 VAC, 50 Hz In; 24 VAC, 50 VA Out
Order number **UPA-2450-50**

UPA-2450-60 Power Supply, 120 V, 60 Hz
Indoor power supply for camera. 120 VAC, 60 Hz In; 24 VAC, 50 VA Out
Order number **UPA-2450-60**

VDA-455TBL Tinted bubble
Tinted bubble for FlexiDome series
Order number **VDA-455TBL**

VDA-455CBL Clear bubble
Clear Bubble for FlexiDome series
Order number **VDA-455CBL**

S1460 Service/Monitor Cable
2.5 mm jack to BNC video connector cable. 1 m
Order number **S1460**

VIDEOJET XTC XF Video Transcoder
High-performance video transcoder. H.264; CF card slot; ROI; max resolution 1080p; 2 channels
Order number **VJT-XTCXF**

Surface Mount Box FLEXIDOME VR
Surface Mount Box for FLEXIDOME VR Cameras
Order number **VDA-455SMB-IP**

NIN-DMY Dummy Camera
FLEXIDOME VR family dummy camera
Order number **NIN-DMY**

Software Options

BVIP AES 128 Bit Encryption
Site licence for BVIP AES 128-bit encryption. Enables encrypted communication between BVIP devices and management stations
Order number **MVS-FENC-AES**

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9736868363 | en, V16, 01. Apr 2015